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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,413	07/16/2003	Doron Handelman		7367

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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,413

Applicant(s)

HANDELMAN, DORON

Examiner

Sung H. Pak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 26-31 and 37-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 26-31, 37-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's response filed 1/10/2006 and 2/08/2006 have been carefully studied by the examiner. Applicant's request for reconsideration of the pending claims and the withdrawal of the ground of claim rejection are convincing. Upon careful reconsideration of the claims, however the examiner respectfully submits that the instant application is not in condition for allowance, and a new ground of rejection is provided over a newly cited prior art reference. Any inconvenience to the applicants is sincerely regretted.

Examiner's Comment

It is respectfully noted that pending claims of the present application contain "functional language" limitations (e.g. at least claims 1, 12 etc.), wherein an "apparatus" claim is further limited by functions performed by the claimed apparatus (i.e. "... in which a first subset... is *configured to function as... to enable a second subset... to be configured...*": claim 1; "... the set of nonlinear elements *being configured...*, wherein the photonic device is *controlled to enable... when the second nonlinear element is turned...*": claim 12, etc).

As stated in MPEP §2114, "[w]hile features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). A claim containing "a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As

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such, while the functional language limitations are not ignored, such limitations are not given patentable weight, and the claimed limitations are anticipated if a prior art apparatus is capable of performing the claimed function. MPEP §2114.

In addition, it is respectfully noted that it would be improper to import specific structural limitations (which are not actually claimed and recited in the claims) from the specification into the claims when interpreting functional language limitations. See MPEP §2111. Thus, the pending claims will be given their broadest reasonable interpretation consistent with the specification, without importing limitations from the specification into the claims.

Any and all claim rejections articulated in this office action will be based on this premise.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9, 11-14, 26-31, 37-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Hendriksen (US 6,330,379 B1).

Hendriksen discloses an optical device with all the limitations set forth in the claims, including: a set of non-linear elements (col. 3, ll. 15-19) in which a first subset of the set of nonlinear elements is configured to function as a set of on/off switches (abstract; Figs. 1-2) in the “off” state (col. 3, ll. 7-14) to enable a second subset of the set of nonlinear elements to be

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configured in at least one optical processing configuration (Fig. 2, col. 3, ll. 7-14: setting the switch element located at the top portion of stage 2 in Fig. 2 to “off” state in accordance with col. 3, ll. 7-14 would inherently “enable” the rest switching elements (i.e. 1x2 switch in stage 1 as well as 1x2 switch in stage 2 located on the bottom portion of state 2) to be configured as a 1x2 switching matrix); and a plurality of waveguides interconnecting at least some non-linear elements in said set of nonlinear elements (Fig. 2);

wherein said set of nonlinear elements is arranged essentially in a parallelogram matrix or a plurality of parallelogram matrices (Fig. 1);

wherein said set of nonlinear element comprises nonlinear element based on at least one of the waveguide devices and electro-optic nonlinear materials (col. 3, ll. 15-19);

wherein said at least one optical processing configuration comprises at least a configuration for 2R, 3R regeneration (2R, 3R regeneration being “optical pulse shaping” in accordance with applicant’s specification at page 23; col. 2, ll. 58-64 explicitly teaches the use of absorber in conjunction with the gate, in which the absorber would inherently “shape” the optical pulse transmitted therein by transforming the transmitted optical energy into other forms of energy);

wherein said at least one optical processing configuration is implemented by at least on interferometric configuration (col. 3, ll. 54-58);

wherein said at least one interferometric configuration comprises at least Mach Zehnder interferometric configuration (col. 3, ll. 54-58);

wherein said second subset of nonlinear elements comprises a first nonlinear element inter-configuration outputting a first output signal in a first direction, and a second nonlinear

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element inter-configuration outputting a second output signal in a second direction, the second direction being essentially opposite to the first direction (Fig. 1);

further comprising input/output ports operative to direct light into and/or out of at least some nonlinear elements in said set of nonlinear elements (col. 1, ll. 51-62).

Regarding method claims 26 et seq., method limitations of “providing” and operating such optical processing apparatus would be inherently met by “providing” and operating the apparatus of Hendriksen discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriksen (US 6,330,379 B1).

Hendriksen discloses an optical device as discussed above, except it does not explicitly teach the use of controller and driver elements for controlling the switching elements; or the use of a optical wavelength filter into and out of switching elements.

Nevertheless, the use of controller and driver element and the use of wavelength filters in optical switching art are well known and common. The use of controllers and drivers are well known to be advantageous and desirable because such controllers and drivers provide complex, efficient, and high speed optical switching functions in a highly automated and precise manner, which increases switching efficiency. The use of wavelength filters are considered advantageous in the art because it allows for multi-wavelength optical switching and routing which allows for high bandwidth optical processing.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Hendriksen to have controller and driver elements, or to have optical wavelength filter element in the disclosed device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sung H. Pak
Primary Patent Examiner
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